

**What is claimed is:**

1. A system for reducing He backside faults when processing a wafer having a process side and a backside opposite the process side, comprising:
  - a cleaning module for cleaning the backside of the wafer so as to remove unwanted particles therefrom before performing subsequent processing tasks on the process side of the wafer; and
  - a processing module for performing processing tasks on the process side of the wafer after the unwanted particles have been removed from the backside of the wafer.
2. The system as recited in claim 1 wherein the cleaning module comprises:
  - a cleaning chamber;
  - an applicator for dispensing a cleaning solution on the back side of the wafer;
  - a brush for scrubbing the backside of the wafer; and
  - a wafer holder for holding the wafer relative to the brush, and wherein the processing module comprises:
    - a process chamber within which processing takes place; and
    - a chuck for holding the backside of the wafer relative to a top surface of the chuck, the chuck including a heat transfer system for controlling the temperature of the wafer, the heat transfer system being configured for distributing He gas to the backside of the wafer during processing.
3. The system as recited in claim 2 wherein the chuck is selected from a vacuum chuck, a mechanical chuck or an electrostatic chuck.
4. The system as recited in claim 1 wherein only the backside of the wafer is cleaned so as not to damage the process side of the wafer.
5. The system as recited in claim 1 wherein the processing module is a plasma reactor for performing an etching task, the plasma reactor having a process chamber within which a plasma is formed for the etching task and a chuck for supporting the wafer during the etching task, wherein the process side of the wafer is etched after

placing the wafer on the chuck and without performing any intervening processing steps between the etching and cleaning steps.

6. The system as recited in claim 1 wherein the processing task is selected from etching, deposition or patterning and wherein the processing task is the next processing task in a sequence of processing steps which include etching, deposition or patterning tasks.

7. The system as recited in claim 1 wherein the cleaning module comprises:  
a cleaning chamber;  
an applicator for dispensing a cleaning solution on the back side of the wafer,  
and a brush for scrubbing the back side of the wafer;  
a wafer holder arranged to hold the wafer relative to the brush; and  
a platen arranged for holding the brush relative to the backside of the wafer.

8. A multiple cluster tool, comprising:  
a transport module for moving a substrate between multiple modules;  
an integrated processing module operatively coupled to the transport module,  
the integrated processing module being arranged to perform a processing task on a top side of the substrate; and

an integrated cleaning module operatively coupled to the transport module, the integrated cleaning module being arranged to perform cleaning task on a backside of the substrate before loading the wafer into the processing module, the cleaning task including removing unwanted particles from the back side of the substrate without effecting the top side of the substrate, and

wherein the transport module moves the substrate from the integrated cleaning module to the integrated processing module and wherein no intervening processing steps are performed between removing the substrate from the cleaning module and introducing the wafer into the processing module.

9. The tool as recited in claim 8 wherein the processing task is selected from etching, deposition or patterning and wherein the processing task is the next processing task in a sequence of processing steps which include etching, deposition or patterning tasks.

10. The tool as recited in claim 8 wherein the cleaning task is selected from a dry cleaning process, a semi-dry cleaning process or a wet cleaning process.

11. The tool as recited in claim 8 wherein the processing module includes a plasma reactor and wherein the cleaning module includes an applicator for applying a cleaning solution to the backside of the wafer, and a brush for scrubbing the backside of the wafer.

12. An apparatus for cleaning the back side of a wafer, comprising:  
a cleaning chamber;  
an applicator for dispensing a cleaning solution on the back side of the wafer,  
and a brush for scrubbing the back side of the wafer;  
a wafer holder arranged to hold the wafer relative to the brush; and  
a platen arranged for holding the brush relative to the backside of the wafer.

13. The apparatus as recited in claim 12 wherein the wafer holder holds the wafer against the brush or the platen holds the brush against the wafer.

14. The apparatus as recited in claim 12 wherein the abrasiveness of the brush is configured to remove un-wanted particles while not adversely affecting the backside of the wafer.

15. The apparatus as recited in claim 12 wherein the cleaning solution is an alcohol based solution or a water based solution.

16. The apparatus as recited in claim 12 wherein the cleaning solution is applied to the brush or to the backside of the wafer.

17. The apparatus as recited in claim 12 wherein the brush and the wafer move relative to one another to force un-wanted particles off the backside of the wafer.

18. The apparatus as recited in claim 12 wherein the wafer is held stationary while the brush is moved or the brush is held stationary while the wafer is moved or both the brush and the wafer are moved together.

19. The apparatus as recited in claim 12 wherein cleaning module includes positioning a brush against the backside of the wafer, rotating the brush relative to the wafer, and flowing a cleaning solution between the backside of the wafer and the brush.

20. The apparatus as recited in claim 12 wherein the brush is dimensioned to cover the entire backside of the wafer or only a portion of the backside of the wafer.

21. The apparatus as recited in claim 12 wherein the brush is arranged to move in rotatory, linear or orbital motion.

22. The apparatus as recited in claim 12 wherein only the backside of the wafer is cleaned so as not to damage the process side of the wafer.

23. A system for reducing He backside faults when processing a wafer having a process side and a backside opposite the process side, comprising:

a cleaning module for cleaning the backside of the wafer so as to remove unwanted particles therefrom before performing subsequent processing tasks on the process side of the wafer; and

a processing module for performing processing tasks on the process side of the wafer after the un-wanted particles have been removed from the backside of the wafer.

24. The system as recited in claim 23 wherein the cleaning module comprises:

a cleaning chamber;

an applicator for dispensing a cleaning solution on the back side of the wafer;

a brush for scrubbing the back side of the wafer; and

a wafer holder for holding the wafer relative to the brush,

and wherein the processing module comprises:

a process chamber within which processing takes place; and

a chuck for holding the backside of the wafer relative to a top surface of the chuck, the chuck including a heat transfer system for controlling the temperature of the wafer, the heat transfer system being configured for distributing He gas to the backside of the wafer during processing.